

**REMARKS**

Applicant thanks the Examiner for acknowledging his claim for priority under 35 U.S.C. § 119 and receipt of the certified copy of the priority document.

Applicant thanks the Examiner for considering the references filed with the Information Disclosure Statements of January 19, 2000, June 22, 2000, June 7, 2001, November 20, 2001 and July 2, 2002.

The drawings have been objected to as containing informalities. Corrected drawings are filed herewith. It is requested that the corrected drawings be accepted.

The specification has been objected to as containing an informality. Specifically the Examiner has objected to the term "D/D converter 16". This term has been changed to the more conventional term "DC/DC converter 16". It is clear from the text at pages 20 and 21 of the specification and Figure 5 that the converter 16 converts the level of the DC voltage from the DC source 15 in response to control signals from the control section 14. As such, the new designation for the converter 16 is consistent with the specification. It is therefore requested that this objection to the specification be withdrawn.

The disclosure has been objected to under 37 C.F.R. § 1.71 based upon a misspelling at page 3 of the subject application. The misspelling has been corrected. Therefore this objection to the specification should also be withdrawn.

Claims 16-28 and 34 have been rejected under 35 U.S.C. § 112 (first paragraph). These claims have been withdrawn without disclaimer or prejudice. Therefore this rejection of the claims is moot.

Applicant thanks the Examiner for indicating that claims 6-15 contain allowable subject matter and would be allowed when written in independent form. To obtain early allowance of the subject application claims 6, 8 and 13, indicated to contain allowable subject matter, have now been written in independent form. Claims 9-12 depend from allowable claim 8 and claims 14-15 depend from allowable claim 13 and therefore are now also in condition for allowance.

Claims 1-5 and 16-34 have been cancelled without disclaimer or prejudice. Therefore the rejection of claims 1-5 and 29-33 rejected under 35 U.S.C. § 103(a) is now moot.

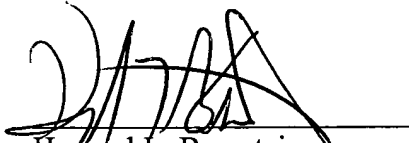
As all claims presently in the application have been indicated to contain allowable subject matter and as all informalities noted by the Examiner have been cured it is respectfully submitted that this application is now in condition for allowance. It is therefore respectfully requested that this application be passed to issue at the earliest possible time.

If for any reason the Examiner finds the application other than in condition for allowance he is respectfully requested to call the undersigned attorney at the Washington, D.C. telephone number 293-7060 to discuss the steps necessary for placing the application in condition for allowance.

Amendment Under 37 C.F.R. § 1.111  
Application No. 09/487,330

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'H. Bernstein', written over a horizontal line.

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Date: October 4, 2002

**APPENDIX**  
**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE SPECIFICATION:**

**The specification is changed as follows:**

Page 20, second full paragraph:

The back-light display device shown in FIG. 5 is the same with that shown in FIG. 3 except that the DC power source 13 is replaced with a [D/D]DC/DC converter 16 and a DC power source 15 for the [D/D]DC/DC converter 16.

Page 20, third full paragraph:

Hence, the back-light display device provided by this embodiment includes an LED 1, a resistance 4 to control current flowing through the LED 1, an FET 10 to drive the LED 1, and a PWM 7 to control the FET 10. Similarly, it has an LED 2, a resistance 5 to control current flowing through the LED 2, a FET 11 to drive the LED 2, a PWM 8 to control the FET 11, an LED 3, a resistance 6 to control current flowing through the LED 3, a FET 12 to drive the LED 3, and a control section 14 to control the timing of control signals delivered by the PWMs 7, 8 and 9 to the FETs 10, 11 and 12 and the duty values of rectangular waves. In addition, the back-light display device has the DC power source 15 to supply power to the LEDs 1, 2 and 3, and the [D/D]DC/DC converter 16 to control the power supplied to the LEDs 1, 2 and 3.

Page 21, first full paragraph:

In FIG. 5, the timing of control signals delivered by the PWM 7, 8 and 9 to the FETs 10, 11 and 12 respectively is the same as shown in FIGS. 4A, 4B and 4C. When a control signal from at least one of the PWMs 7, 8 and 9 is at a high level, control section 14 can deliver a control signal to the  $[D/D]DC/DC$  converter 16 in order to raise output voltage "E" from the  $[D/D]DC/DC$  converter 16. Then, the sum of the average current "I" becomes larger than that shown in the Equation (12) and the intensity of brightness of a displayed color can be strengthened or brightened.

Page 21, first full paragraph:

Likewise, when a control signal from at least one of PWMs 7, 8 and 9 is at a high level, control section 14 can deliver a control signal to the DC/DC converter 16 in order to lower the output voltage "E" from the  $[D/D]DC/DC$  converter 16. Then, the sum of the average current "I" becomes smaller than that shown in the Equation (12), and the intensity of brightness of a displayed color is weakened or darkened.

Page 3, second full paragraph (which bridges to page 4):

In order to achieve the above object, a portable electronic device having a display device according to the present invention comprises a first light emitter for emitting a first color light, a second light emitter for emitting a second color light which is deferent from the first color light, a third light emitter for emitting a third color light which is deferent from the first color light and the second color light, whereby images of a ~~[forth]~~fourth color are adapted to be displayed in

cooperation with the first light emitter and the second light emitter, a power source for supplying voltage to the first light emitter, the second light emitter and the third light emitter, a controller for controlling currents flowing through the first light emitter, the second light emitter and the third light emitter, respectively, whereby a sum of the currents flowing through the first light emitter, the second light emitter and the third light emitter is maintained at a predetermined current value.

**IN THE CLAIMS:**

**Claims 1-5 and 16-34 are canceled.**

**The claims are amended as follows:**

6. (Amended) [The display device as claimed in claim 5]A display device, comprising:  
a plurality of light emitters, each of said light emitters emitting a light different in color  
from other of said light emitters;  
a power source for supplying power to said light emitters;  
a controller for controlling a current flowing through at least one of said light emitters  
such that a sum of currents flowing through said light emitters is maintained at a predetermined  
value, further comprising:  
a plurality of resistors, wherein said resistors are respectively disposed between said  
power source and said light emitters, and a resistance value of said resistors affects the current  
flowing through said light emitters;

wherein the resistance values of said resistors are set to be substantially equal to each other whereby the sum of currents flowing through said light emitters is maintained at the predetermined value.

8. (Amended) [The display device as claimed in claim 1] comprising:

a plurality of light emitters, each of said light emitters emitting a light different in color from other of said light emitters;

a power source for supplying power to said light emitters;

a controller for controlling a current flowing through at least one of said light emitters such that a sum of currents flowing through said light emitters is maintained at a predetermined value, wherein said controller includes:

a plurality of switches respectively connected to said light emitters, for individually controlling whether or not the currents are flowing through said light emitters connected thereto;  
and

a plurality of control signal generators for respectively generating a control signal to said switches, wherein said controller includes:

a plurality of switches respectively connected to said light emitters, for individually controlling whether or not the currents are flowing through said light emitters connected thereto;  
and

a plurality of control signal generators for respectively generating a control signal to said switches.

13. (Amended) [The display device as claimed in claim 1] comprising:

a plurality of light emitters, each of said light emitters emitting a light different in color from other of said light emitters;

a power source for supplying power to said light emitters;

a controller for controlling a current flowing through at least one of said light emitters such that a sum of currents flowing through said light emitters is maintained at a predetermined value, further comprising:

a converter for adjusting the power supplied to said light emitters from said power source.

FIG. 1

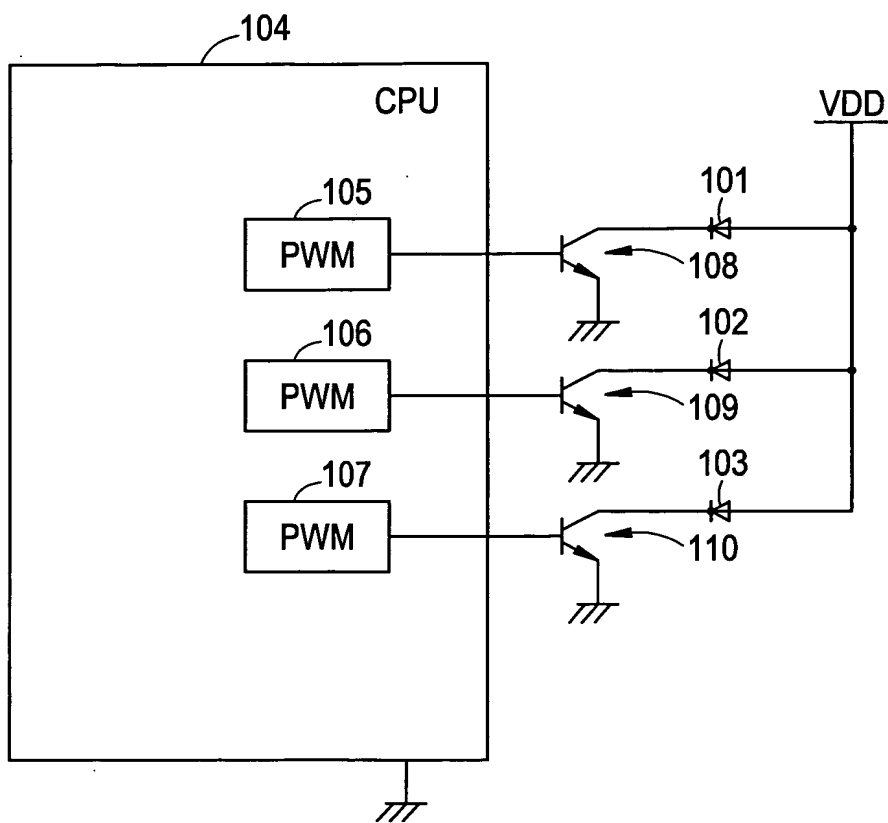


FIG. 2

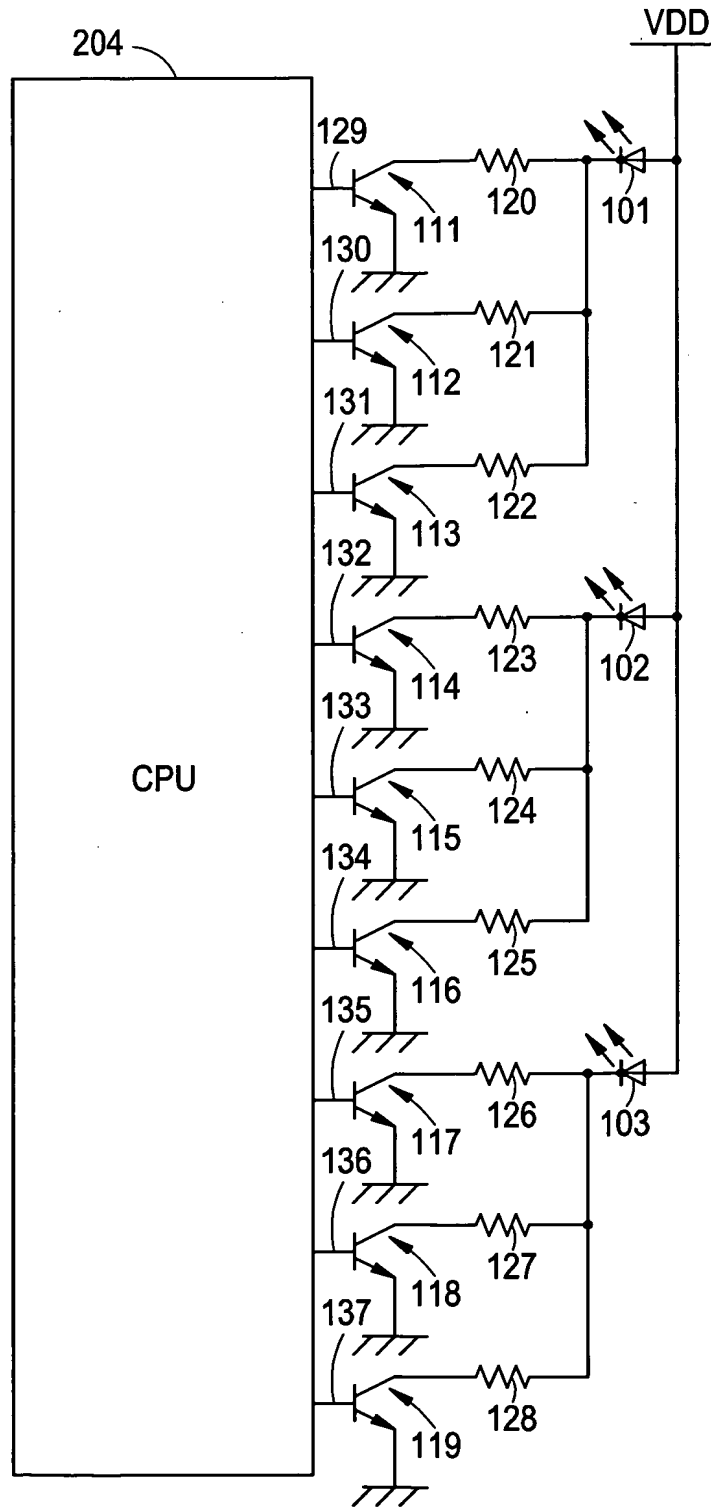
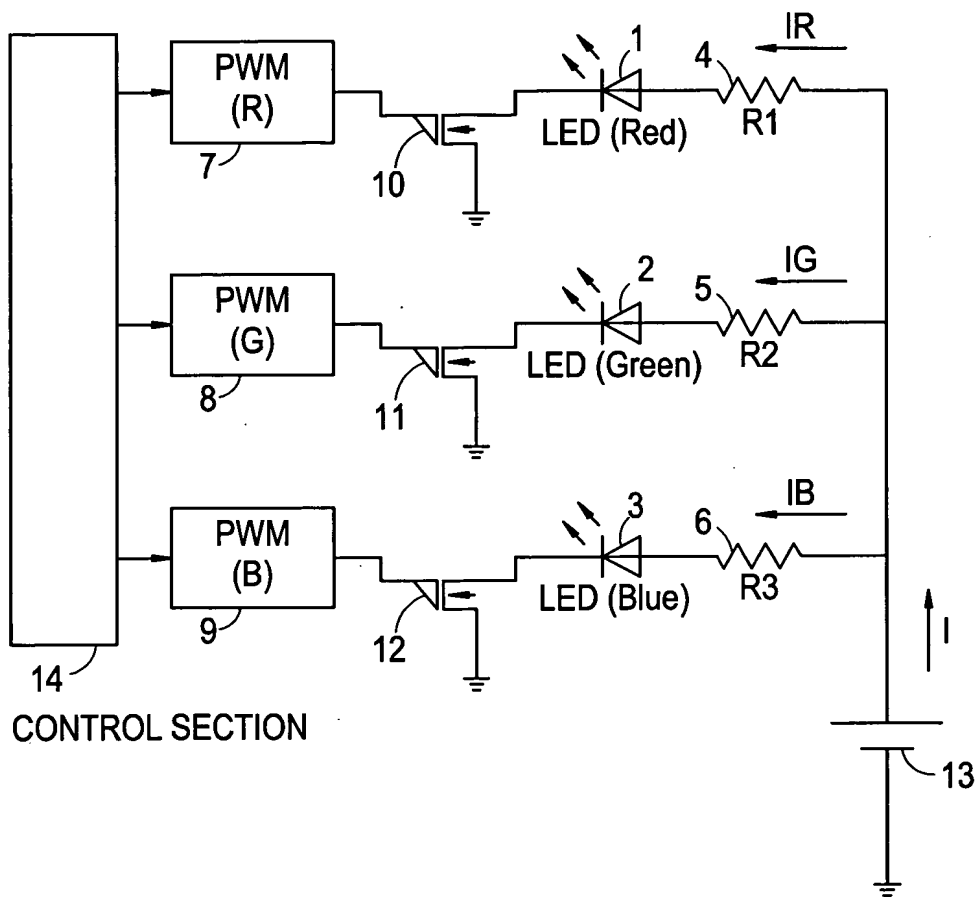
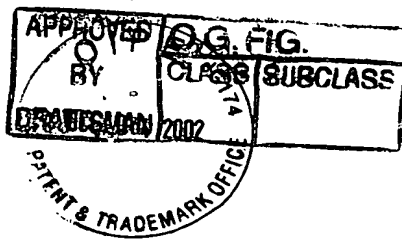


FIG. 3





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FIG. 4A

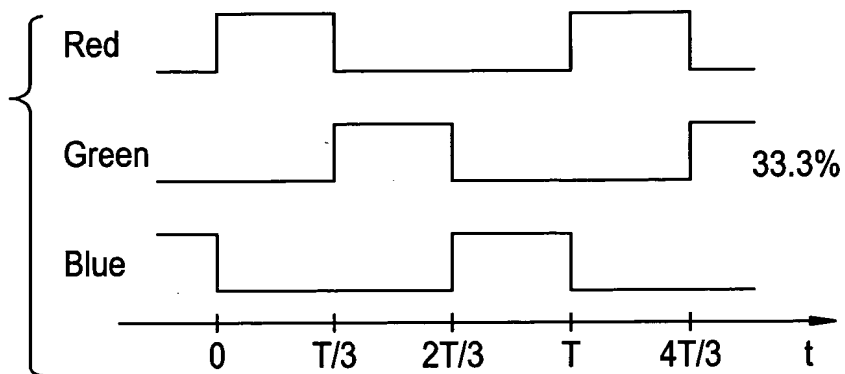


FIG. 4B

